



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/740,902 12/21/00 ASADA

2011621828
EXAMINER

022850 MMC2/1026
OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON VA 22202

ART UNIT

PAPER NUMBER

DATE MAILED:

10/26/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/740,902

Applicant(s)

ASADA, JUNICHI

Examiner

Chris C. Chu

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 - 27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: on page 16, line 25 of the specification refers an opening portion "6" which is not referenced in the figures.

Correction is required.

2. Fig. 3B is objected to under 37 CFR 1.83(a) because the figure fails to show a cross sectional view along the line IIIB-IIIB shown in Fig. 3A as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required.

3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect can be deferred until the application is allowed by the examiner.

Specification

4. The disclosure is objected to because of the following informalities:

On page 16, line 25, "6" should be --46--.

On page 17, line 24, "the resin" should be --a resin--

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 1 ~ 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the claim recites the limitations "the connecting portion" in line 14 and "the tip portions" in line 15. There is insufficient antecedent basis for this limitation in the claim.

In claim 4, the claim recites the limitation "the minimum pitch" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Regarding claims 18, 19, and 20, claim 2 is a species claim, which only reads on Figs. 3A and 3B, however claims 18, 19, and 20, which ultimately depend from claim 2, read on Figs. 4A and 4B. This makes no sense as to how claims 18, 19, and 20 read with respect to the disclosure embodiments.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

Art Unit: 2815

has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura et al.

Note Fig. 28 of Nakamura et al., where he/she shows a semiconductor device, comprising: a semiconductor element (2); a plurality of lead wires (5 on 6a) connected to a plurality of connecting electrodes (6a) of said semiconductor element (see Fig. 28); at least a single dummy lead wire (5a on top and bottom and read column 9, lines 17 ~ 18) that does not include an outer lead portion for electrically connecting said semiconductor element to an external circuit of said semiconductor element (see Fig. 28); an insulating film (4) having an opening portion for accommodating said semiconductor element and serving to support said lead wires connected to the connecting electrodes of the semiconductor element and said dummy lead wire (see Fig. 28 and read column 10, lines 59 ~ 64); and a resin molding (3) covering the connecting portion between the tip portions of the lead wires and the connecting electrodes and the tip portion of said dummy lead wire within the opening portion of said insulating film (see Fig. 28 and read column 11, lines 39 ~ 44).

9. Claims 1 ~ 3, 7, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Oshino et al.

Note Fig. 1 of Oshino et al., where he/she shows a semiconductor device, comprising: a semiconductor element (3); a plurality of lead wires (5) connected to a plurality of connecting electrodes (4) of said semiconductor element (see Fig. 1); at least a single dummy lead wire (5A and 5B) that does not include an outer lead portion for electrically connecting said semiconductor element to an external circuit of said semiconductor element (see Fig. 1); an

Art Unit: 2815

insulating film (6) having an opening portion (see Fig. 1) for accommodating said semiconductor element and serving to support said lead wires connected to the connecting electrodes of the semiconductor element and said dummy lead wire (see Fig. 1); and a resin molding (7) covering the connecting portion between the tip portions of the lead wires and the connecting electrodes and the tip portion of said dummy lead wire within the opening portion of said insulating film (see Figs. 1 and 2).

Regarding claim 2, note Fig. 1 of Oshino et al., where he/she shows the tip portion of the dummy lead wire (5B) covered with said resin molding (7) is positioned between the peripheral portion of said opening portion and the peripheral portion of the semiconductor element (3) arranged within the opening portion (see Fig. 1).

Regarding claim 3, note Fig. 1 of Oshino et al., where he/she shows the tip portion of said dummy lead wire (5A) extends over said semiconductor element (see Fig. 1).

Regarding claims 7 and 13, note Fig. 1 of Oshino et al., where he/she shows said semiconductor element includes a dummy connection electrode (4A) that is not electrically connected to an internal circuit, and the tip of said dummy lead wire (5A) is connected to said dummy connection electrode (see Fig. 1).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 1 ~ 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anjoh et al. in view of the acknowledged prior art of Fig. 1A.

Note Figs. 1, 3, and 4 of Anjoh et al., where he/she shows a semiconductor device, comprising: a semiconductor element (1); a plurality of lead wires (3A) connected to a plurality of connecting electrodes (BP) of said semiconductor element (see Figs. 1 and 3); at least a single dummy lead wire (3C, first 3A on top, and last 3A on bottom) that does not include an outer lead portion for electrically connecting said semiconductor element to an external circuit of said semiconductor element (see Fig. 1); and a resin molding (2A) covering the connecting portion between the tip portions of the lead wires and the connecting electrodes and the tip portion of said dummy lead wire within the opening portion of said insulating film (see Fig. 3) except an insulating film having an opening portion for accommodating said semiconductor element and serving to support said lead wires connected to the connecting electrodes of the semiconductor element and said dummy lead wire. However, the acknowledged prior art of Figs. 1A and 1B has an insulating film (2) having an opening portion for accommodating said semiconductor element and serving to support said lead wires connected to the connecting electrodes of the semiconductor element and said dummy lead wire (see the acknowledged prior art of Figs. 1A and 1B). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Anjoh et al. by including an insulating film under lead wires and dummy lead wire(s) of Anjoh et al., so the insulating film having an opening portion for accommodating said semiconductor element and serving to support said lead wires connected to

Art Unit: 2815

the connecting electrodes of the semiconductor element and said dummy lead wire as taught by the acknowledged prior art. The ordinary artisan would have been motivated to modify Anjoh et al. in the manner described above for at least the purpose of increasing reliability of the semiconductor device (column 2, lines 7 ~ 9).

Regarding claim 2, Anjoh et al. discloses the claimed invention except for the tip portion of the dummy lead wire covered with said resin molding is positioned between the peripheral portion of said opening portion and the peripheral portion of the semiconductor element arranged within the opening portion. However, it would have been an obvious matter of design choice to change the tip portion of the dummy lead wire covered with said resin molding to be positioned between the peripheral portion of said opening portion and the peripheral portion of the semiconductor element arranged within the opening portion, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). The ordinary artisan would have been motivated to modify Anjoh et al. in the manner described above for at least the purpose of decreasing manufacturing cost.

Regarding claim 3, note Figs. 1, 3, and 4 of Anjoh et al., where he/she shows the tip portion of said dummy lead wire (3C, first 3A on top, and last 3A on bottom) extends over said semiconductor element (see Figs. 3 and 4).

Regarding claims 4, 8, and 10, note Figs. 1, 3, and 4 of Anjoh et al., where he/she shows said dummy lead wire (3C, first 3A on top, and last 3A on bottom) is arranged in a large space having at least twice the minimum pitch of the arrangement of said lead wires (see Fig. 4).

Regarding claims 5, 9, 11, 14, 18, and 21, note Figs. 1, 3, and 4 of Anjoh et al., where he/she shows at least two dummy lead wires (3C, first 3A on top, and last 3A on bottom) are arranged in said semiconductor device (see Figs. 1 and 4) and the tip portions of two adjacent dummy lead wires (first 3A on top, and last 3A on bottom) are connected to each other (see Fig. 1 and 4).

Regarding claims 6, 12, 15, 19, and 22, note Figs. 1, 3, and 4 of Anjoh et al., where he/she shows said dummy lead wires (3C, first 3A on top, and last 3A on bottom) are formed in two sides (see Fig. 1), which face each other, of said semiconductor element, and the tip portions of the dummy lead wires positioned to face each other are connected to each other (see first 3A on top and last 3A on bottom in Fig. 4 and Fig. 1).

Regarding claims 7, 13, 16, 20, and 23, note Figs. 1, 3, and 4 of Anjoh et al., where he/she shows said semiconductor element includes a dummy connection electrode that is not electrically connected to an internal circuit, and the tip of said dummy lead wire is connected to said dummy connection electrode (see Fig. 1). Further, the phrase “a dummy connection electrode” is structurally inherent in Anjoh et al.

Regarding claims 17, 24, 25, 26, and 27, note Figs. 1, 3, and 4 of Anjoh et al., where he/she shows said dummy connection electrode is electrically connected to a power source line or a ground line (column 4, line36).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ito, Hosomi et al., Lamson et al., Lin, Burns, and Funakoshi et al. disclose a semiconductor device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu
Examiner
Art Unit 2815

c.c.
October 22, 2001



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800